

Indiana Department of Environmental Management
Office of Program Support
MC-64-00, Room IGCN 1316
100 North Senate Avenue
Indianapolis, Indiana 46204-2251
USA

AstraZeneca
4601 Highway 62
Mount Vernon, Indiana, 47620, USA
www.astrazeneca.com

Reference: Indiana Environmental Stewardship Program Annual Performance Report

March 17, 2020

Dear ESP,

Please find attached the 2019 Indiana Environmental Stewardship Program Annual Performance Report and associated Attachments to aid in the review of AstraZeneca Pharmaceuticals, LP's (AstraZeneca's) application. In addition, this cover letter will also provide pertinent descriptions related to the Initiatives outlined in the application Section E:

Initiative #1: Water Consumption Reduction Initiative

AstraZeneca devoted much of 2019 to improvement of the water system infrastructure (e.g., fire protection water loop) and other water line maintenance/repair that are deemed to be near end-of-life. Additional infrastructure improvements are proposed in future years to help improve water quality at the site. Initiative #1 provides data to show efficiency improvements in our operational cleaning process that have resulted in significant reductions in water consumption with improved production.

Initiative #2: Energy Consumption Reduction Initiative

AstraZeneca re-engineered several processes in the facility that further improved energy efficiency, which included, but was not limited to: LED lighting retrofits, fan array installation, process area air exchange rate optimization, and variable frequency drive installations. Initiative #2 provided data to show energy improvements realized in 2019.

Initiative #3: Zero Waste to Landfill Initiative

AstraZeneca is targeting the removal of wastes to landfill by the year 2021. Initiative #3 provides data of landfill waste weights in 2015 and in 2019. Significant outcomes were accomplished in 2019 that required waste processing changes and installation of additional waste compactor(s) onsite that will allow us to divert our wastestreams to a waste-to-energy facility. This initiative will continue through 2021.

Furthermore, this document includes Sustainability Project Summary Sheets that provide more details of select Sustainability / Environmental Improvement activities conducted at AstraZeneca in 2019.

Thank you for your time reviewing our application. Should you have any questions, please contact me at your convenience.

Sincerely
AstraZeneca Pharmaceuticals, LP



Kevin D. Conkright
Sr. SHE Specialist

T: 812.307.2218

E: kevin.conkright@astrazeneca.com

ATTACHMENT 1:

Indiana Environmental Stewardship Program Annual Performance Report



INDIANA ENVIRONMENTAL STEWARDSHIP PROGRAM ANNUAL PERFORMANCE REPORT

State Form 53475 (R6 / 2-19)

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
ENVIRONMENTAL STEWARDSHIP PROGRAM

Indiana Department of Environmental Management
Office of Program Support
MC 64-00, Room IGCN 1316
100 North Senate Avenue
Indianapolis, IN 46204-2251
Telephone: (800) 988-7901
FAX: (317) 233-5627
E-mail: esp@idem.IN.gov

Please use this form if you are a member of the Indiana Environmental Stewardship Program (ESP) to report on progress toward objectives and targets AND certify ESP requirements continue to be achieved. Indiana ESP facilities must submit an Annual Performance Report (APR) by **April 1st** of every year, for each calendar year in which the entity has been a member for at least three (3) full months. Membership terms are renewed every four (4) years through submitting your APR. Your APR should be reviewed and signed by a senior manager at your facility prior to submittal. Once signed, e-mail the APR to IDEM at esp@idem.IN.gov. Please do not include any confidential business information in your annual performance report. **Public access laws require IDEM to make the APR publicly available, which may include posting all portions of your report on the Indiana ESP Web site. If you have any questions, please contact IDEM at esp@idem.IN.gov or (800) 988-7901.**

SECTION A

FACILITY INFORMATION

Name of facility

AstraZeneca Pharmaceuticals, LP

Name of parent company (if applicable)

Street address (number and street)

4601 Highway 62 East

City / State / ZIP code

Mount Vernon, Indiana 47620

Website of facility / company

www.astrazeneca.com

CONTACT INFORMATION

Name of Contact (Mr. / Mrs. / Ms. / Dr.)

Kevin Conkright

Title

St. SHE Specialist

Telephone number

(812) 903-2218

FAX number

()

E-mail address

kevin.conkright@astrazeneca.com

Mailing address (if different from facility address)

City / State / ZIP Code

REPORTING PERIOD

Reporting period dates from prior calendar year (mm/dd/yyyy – mm/dd/yyyy)

01/01/2019 - 12/31/2019

1a. Is this the fourth Annual Performance Report of your membership term?

☐ Yes—If yes, answer question 1b.

☒ No—If no, skip to the "Change in Information" section of this report.

1b. Do you wish to renew your Indiana Environmental Stewardship Program membership?

☐ Yes—If yes, please complete all sections of this annual report.

☐ No—If no, please complete all sections of this annual report except for Section F.

CHANGE IN INFORMATION

In your ESP application and, perhaps, in previous annual performance reports, you described what your facility does or makes. Have there been any changes or additions to your facility's list of products or activities?

☐ Yes—If yes, please describe them: _____

☒ No

SECTION B

PUBLIC OUTREACH AND PERFORMANCE REPORTING

Why do we need this information?

IDEM needs to know how environmental information was shared with the public.

What do you need to do?

Describe how the facility has shared and plans to share environmental information.

Please briefly describe the activities that your facility conducted during this reporting period to interact with the community on environmental issues and to report publicly on its environmental performance. AstraZeneca - Mount Vernon held several events in 2019 that included an Earth Day Celebration focused upon a sustainable environment, and a Recycling Day. We report publically through AstraZeneca - Global where our data is included in Sustainability Report for DJSI.

Please indicate which of the following methods your facility plans to use to make its ESP Annual Performance Report available to the public. Please check as many as appropriate.

SECTION C

ENVIRONMENTAL MANAGEMENT SYSTEM ASSESSMENT

Why do we need this information?

Facilities need to have implemented an EMS that meets certain criteria and use an ISO 14001 EMS Lead Auditor at least every thirty-six (36) months to assess the EMS.

What do you need to do?
Answer the following questions about your EMS.

1. What is the most recent date that an ISO 14001 EMS Lead Auditor performed an EMS assessment at your facility? September 14, 2017
2. Name, title, and organization of ISO 14001 EMS Lead Auditor who conducted the most recent EMS assessment: Kristen Belcredi, Senior VP, Engineering Services, Keramida
3. Is the date of the most recent EMS assessment performed by an ISO 14001 EMS Lead Auditor within the past thirty-six (36) months?
 - ☒ Yes—If yes, skip to Question 4.
 - ☐ No—If no, please have your ISO 14001 EMS Lead Auditor complete and sign the following checklist, indicating whether or not your EMS meets the listed criteria for ESP membership:
 - ☐ Yes ☐ No Evidence of senior management support, commitment, and approval.
 - ☐ Yes ☐ No A written environmental policy directed toward compliance, pollution prevention, and continuous improvement.
 - ☐ Yes ☐ No Identification of the environmental aspects at the entity.
 - ☐ Yes ☐ No Prioritization of the environmental aspects and a determination of those aspects deemed significant considering, at the minimum, environmental impacts and applicable laws and regulations.
 - ☐ Yes ☐ No Established priorities, and environmental objectives and targets for continuous improvement in environmental performance and for ensuring compliance with applicable environmental laws, regulations, and permit conditions. Objectives and targets must go beyond current legal requirements and specify the environmental media, types of pollution to be prevented or reduced, implementation activities, and projected time frames.
 - ☐ Yes ☐ No An established community outreach mechanism that includes identifying and responding to community concerns; informing the community of important matters that affect the community; and reporting on the EMS, including reporting to the public on the environmental policy and significant aspects.
 - ☐ Yes ☐ No Incorporation of environmental and pollution prevention planning in the development of new products, processes, and services and modifications of existing processes.
 - ☐ Yes ☐ No Evidence of clear responsibility for implementation, training, monitoring, EMS maintenance, taking corrective action, and ensuring compliance with applicable environmental laws, regulations, and permit conditions.
 - ☐ Yes ☐ No Documentation of the implementation procedures and the results of implementation.
 - ☐ Yes ☐ No Appropriate written EMS procedures.
 - ☐ Yes ☐ No An annual evaluation of the EMS with written results provided to senior management and affected employees.

Signature of ISO 14001 EMS Lead Auditor

Date (month, day, year)

4. Were any deficiencies found during the most recent EMS assessment?
 - ☒ Yes—If yes, describe any deficiencies found and the corrective action taken to address each deficiency: (Completed in October 2017)
 - ☐ No
5. What type of protocol was used to perform the independent EMS assessment?
 - ☐ ISO 14001:2015 Certified audit
 - ☒ ESP Independent Assessment Protocol
 - ☐ Other (please specify): _____
6. Is the EMS certified to a recognized standard?
 - ☐ Yes—If yes, what standard does the EMS follow (please provide a copy of the most recent certificate)?
 - ☐ ISO 14001:2015
 - ☐ Responsible Care EMS
 - ☐ Responsible Care 14001
 - ☒ No

SECTION C

ENVIRONMENTAL MANAGEMENT SYSTEM ASSESSMENT
CONTINUED

7. When was the last Senior Management review of your EMS completed?
Month / Year: December 2019
Who headed the review (name and title)? Tanya Harris, Vice President & General Manager
8. When did your facility last conduct an internal or corporate environmental compliance audit? Do not include inspections or site visits by regulatory organizations.
Scope of the compliance audit: Safety & Environmental Compliance
Month(s) / Year(s): October 2018
Who conducted the audit(s) (e.g., facility staff, corporate, third party)? AZ Corporate SHE Compliance Team
9. Explain the emergencies experienced within the facility during the past year. Were the applicable emergency and contingency plans detailed in the EMS effective? What changes, if any, have been made to your facility's emergency or contingency plans?
No emergencies experienced in 2019. The EMS is currently being reviewed and updated to include fire protection updates (e.g., new fire water main loop installation, installation of new fire devices, etc.) that began installation in 2019 and are expected to be completed in 2020.
10. Has your facility corrected all instances of potential environmental non-compliance and EMS non-conformance identified during your audits and other assessments?
☐ Yes—If yes, briefly summarize corrective actions taken and other improvements made as a result of your EMS assessment(s) or compliance audit(s). ☐ No—If no, please explain your plans to correct these instances. ☒ No such instances identified.

SECTION D

ADDITIONAL INFORMATION

Why do we need this information?

This information will help IDEM to effectively manage the Environmental Stewardship Program.

What do you need to do?

Answer the questions as completely as possible.

1. In addition to ESP, please list environmental awards received or voluntary programs participated in during the past twelve (12) months.
Received recertification of Grasslands for the Future from Wildlife Habitat Council in 2019 through 2021.
2. Has your facility taken advantage of any ESP incentives? If so, please describe the implementation process and list additional benefits IDEM should consider.
Our Company takes advantage of decreased reporting through the ESP incentives program. At this time, no other considerations have been identified.
3. If your facility was not registered to the ISO 14001 standard prior to becoming an ESP member, has ESP helped you to pursue registration? If so, how has ESP been instrumental in achieving registration?
ESP assists us with identification of new EMS directives & protocols through meetings and peer conversations.

SECTION E

ENVIRONMENTAL IMPROVEMENT INITIATIVE RESULTS

Why do we need this information?

Facilities need to share the results of the environmental improvement initiative that was pursued during the reporting period. IDEM needs to report cumulative program reduction results.

What do you need to do?

Reference Section F for "Category" and "Indicator" options to complete this section. Summarize your facility's progress on achieving the initiative you identified in the application or last year's APR. For assistance, please call (800) 988-7901 or email esp@idem.IN.gov.

Initiative #1

Category 1: _____ Indicator 1: _____	Baseline (indicate measurement unit)	Current (indicate measurement unit)	Cost Savings
Calendar year	2015	2019	N/A
Actual quantity (per year)	79,660,274 Gallons	79,580,389 Gallons	N/A
Production unit (select one)	Earned Labor Hours Tablets Production units Production lbs. Other -- specify (e.g. Gallons, length, etc.)		
Production Quantity	1.358 Billion	2.730 Billion	NA
Normalization factor (Current year production ÷ Baseline year production) 2.01			
Normalized quantity (Actual current year quantity - Actual baseline quantity) x Normalization factor -160,568 Gallons			

Briefly describe *how* you achieved improvements for environmental initiative #1 or, if relevant, any circumstances that delayed progress. We are currently making twice the amount of tablets with the same amount of water, which is due to lean activities associated with production consumption, as well as, improved efficiency of our cooling tower system. More projects are scheduled for 2020-2021 that are targeted to reduce water usage.

SECTION E

ENVIRONMENTAL IMPROVEMENT INITIATIVE RESULTS CONTINUED

Initiative #2

Category 2: _____ Indicator 2: _____	Baseline (indicate measurement unit)	Current (indicate measurement unit)	Cost Savings
Calendar year	2015	2019	N/A
Actual quantity (per year)	112,341 MWH	102,115 MWH	\$839,045
Production unit (select one)	Earned Labor Hours Tablets Production units Production lbs. Other -- specify (e.g. Gallons, length, etc.)		
Production Quantity	1.358 Billion	2.730 Billion	NA
Normalization factor (Current year production ÷ Baseline year production) 2.01			
Normalized quantity (Actual current year quantity - Actual baseline quantity) x Normalization factor 20,554 MWH			

Briefly describe *how* you achieved improvements for environmental initiative #2 or, if relevant, any circumstances that delayed progress. We are currently twice the amount of tablets produced using less energy (MWH) than we did in 2015, which is attributed to Natural Resource Reduction Projects that include new equipment installations (e.g., fan banks, air exchange rate optimizations), which improves our overall energy usage.

Initiative #3

Category 3: _____ Indicator 3: _____	Baseline (indicate measurement unit)	Current (indicate measurement unit)	Cost Savings
Calendar year	2015	2019	N/A
Actual quantity (per year)	717 mT to landfill	102 mT to landfill	N/A
Production unit (select one)	Earned Labor Hours Tablets Production units Production lbs. Other -- specify (e.g. Gallons, length, etc.)		
Production Quantity	1.358 Billion	2.730 Billion	NA
Normalization factor (Current year production ÷ Baseline year production) 2.01			
Normalized quantity (Actual current year quantity - Actual baseline quantity) x Normalization factor 1,236 mT			

Briefly describe *how* you achieved improvements for environmental initiative #3 or, if relevant, any circumstances that delayed progress. AstraZeneca is targeting zero waste to landfill by 2021. Improvement in waste diversion to landfill was accomplished by changing waste collection program to route as fuel source for energy recovery.

1. Briefly describe the *impacts or wastes* eliminated resulting from the environmental initiative(s). If multiple initiatives, please indicate which specifically. Please see the attached sustainability project summaries for details associated with our continued environmental impact improvement initiatives.

2. Are there other best management practices (BMPs) you can share correlating to your initiative(s)?
Correlated data with a process assessment (internal or external) is important to identify the highest potential for process/economic improvement, which will require challenging the "Status quo"

3. If the objectives and targets associated with the environmental improvement initiative(s) were not attained, please verify continued progress toward the environmental initiative(s). If multiple initiatives, please indicate which specifically.
AstraZeneca will quantitatively measure improvements made in 2019 in 2020 (and beyond) to verify engineering design and forecasts. Objectives and targets appeared to be met for 2019.

4. Please provide a narrative summary of progress made toward *qualitative, significant* EMS objectives and targets, if any.
Please see attached sustainability project summaries for qualitative and significant EMS improvement narratives.

5. Please list any state, U.S. EPA, or other partnership programs to which you are reporting this data (e.g., Energy Star, Project XL).

None identified.

6. Is your entity willing to share the environmental improvement initiative(s) and its best management practices (BMPs) at the ESP Annual Meeting and/or a Partners for Pollution Prevention quarterly meeting or conference? ☒ Yes ☐ No

SECTION F

ENVIRONMENTAL IMPROVEMENT INITIATIVE

Why do we need this information?

Facilities need to show they are committed to improving their environmental performance.

What do you need to do?

Refer to the Environmental Performance Table and answer the following questions.

1. Select the appropriate boxes in the following table to indicate the **category** and **indicator(s)** that represents the next environmental improvement initiative selected by your facility. For the category and indicator selected, list the **baseline year** (e.g., 2015) and the **future year** (e.g., 2016). Next, list the **baseline annual quantity** (e.g., 5 tons) and **future annual quantity** (e.g., 2 tons) you are committing to achieve by the end of the future year.

Category	Indicator	Baseline Year 2015	Future Year 2020	Unit
<input type="checkbox"/> Material Procurement	<input type="checkbox"/> Recycled content			Pounds, tons
	<input type="checkbox"/> Hazardous/toxic components			Pounds, tons
<input type="checkbox"/> Suppliers' Environmental Performance	<input type="checkbox"/> Specify indicator: _____			As specified for the particular indicator
<input type="checkbox"/> Material Use	<input type="checkbox"/> Materials used			Pounds, tons
	<input type="checkbox"/> Hazardous materials used			Pounds, tons
	<input type="checkbox"/> Ozone depleting substances used			CFC-11 equivalent pounds
	<input type="checkbox"/> Total packaging materials used			Pounds, tons
<input type="checkbox"/> Water Use	<input type="checkbox"/> Total water used			Gallons
<input checked="" type="checkbox"/> Energy Use	<input checked="" type="checkbox"/> Electricity			kWh / MWh, Btu / MMBtu
	<input type="checkbox"/> Steam			kWh / MWh, gallons, ft ³
	<input type="checkbox"/> Natural gas			Btu / MMBtu
	<input type="checkbox"/> Diesel			Gallons
	<input type="checkbox"/> Propane / LPG			Btu / MMBtu, gallons
	<input type="checkbox"/> Gasoline			Gallons
	<input type="checkbox"/> Solar			kWh / MWh
	<input type="checkbox"/> Wind			kWh / MWh
	<input type="checkbox"/> Landfill gas			Btu / MMBtu
	<input type="checkbox"/> Combined heat and power			kWh / MWh, Btu / MMBtu
	<input checked="" type="checkbox"/> Other: <u>Renewable Energy</u>	36,077 MWH	32,500 MWH	100% Renewable Electrical Energy in 2020.
<input type="checkbox"/> Land and Habitat	<input type="checkbox"/> Land and habitat conservation			Square feet, acres
	<input type="checkbox"/> Community land revitalization			Square feet, acres
<input checked="" type="checkbox"/> Air Emissions	<input checked="" type="checkbox"/> Total GHGs	41,643	15,538	MTCO2E
	<input type="checkbox"/> VOCs			Pounds, tons
	<input type="checkbox"/> NOx, SOx, PM _{2.5} , PM ₁₀ , or CO			Pounds, tons
	<input type="checkbox"/> Air toxics			Pounds, tons
	<input type="checkbox"/> Odor			European Odour Units
	<input type="checkbox"/> Radiation			Curies, Becquerels
	<input type="checkbox"/> Dust			Pounds, tons
<input type="checkbox"/> Discharges to Water	<input type="checkbox"/> COD or BOD			Pounds, tons
	<input type="checkbox"/> Toxics			Pounds, tons
	<input type="checkbox"/> Total suspended solids			Pounds, tons
	<input type="checkbox"/> Nutrients			Pounds, tons of N or P
	<input type="checkbox"/> Sediment from runoff			Pounds, tons
	<input type="checkbox"/> Pathogens			MPN/ml, CFU/ml
<input checked="" type="checkbox"/> Non-hazardous Waste	<input checked="" type="checkbox"/> Landfill	717 mT	80 mT	Pounds, tons
<input type="checkbox"/> Hazardous Waste	<input type="checkbox"/> Incineration			Pounds, tons
	<input type="checkbox"/> Reused/recycled off-site			Pounds, tons, gallons
	<input type="checkbox"/> Other: _____			Pounds, tons, gallons
<input type="checkbox"/> Noise	<input type="checkbox"/> Noise			dBA

<input type="checkbox"/> Vibration	<input type="checkbox"/> Vibration			Inches per second
<input type="checkbox"/> Products	<input type="checkbox"/> Expected lifetime energy use			kWh / MWh, Btu / MMBtu
	<input type="checkbox"/> Expected lifetime water use			Gallons
	<input type="checkbox"/> Expected lifetime waste to air, water, or land from product use			Pounds, tons
	<input type="checkbox"/> Waste to air, water, or land from disposal or recovery			Pounds, tons

If you need assistance filling out the form, please contact the ESP program manager at either esp@idem.in.gov or 1-(800) 988-7901.

SECTION F

FUTURE YEAR ENVIRONMENTAL IMPROVEMENT INITIATIVE

CONTINUED

2. If the environmental improvement initiative(s) will be *qualitative* in nature, please describe. Environmental improvements identified will be quantitative.
3. What activities or process changes do you plan to undertake at your facility to accomplish your initiative (e.g., technology changes in a particular process line, employee training)? _____
4. Does this initiative address a significant aspect in your EMS?
- ☒ Yes
- ☐ No—If no, please explain why you believe this indicator should be included as an environmental improvement initiative: _____

CERTIFICATION AND PLEDGE

On behalf of (name of facility) AstraZeneca Pharmaceuticals, LP

I certify that the information contained in this Annual Performance Report and attachments is accurate to the best of my knowledge and that this facility is, to the best of my knowledge and based on reasonable inquiry, currently in compliance with all applicable federal, state, and local environmental requirements, or has a corrective action program in place to attain compliance.

We, AstraZeneca Pharmaceuticals, LP, commit to maintaining the principles and goals outlined in our Environmental Management System for our facility's Indiana Environmental Stewardship Program status. We agree to strive for full compliance with all regulations promulgated by the U.S. EPA, state, or local jurisdictions. We agree to promote the Indiana Environmental Stewardship Program and to share our success stories with other facilities. We understand that we must meet the requirement of implementing one (1) new, independent environmental improvement initiative each year of membership (for a total of four (4) initiatives), that the Annual Performance Report must be submitted to IDEM by April 1st of each year, and that we must reapply to the Indiana Environmental Stewardship Program every four (4) years.

I understand that the information provided in this Annual Performance Report will be public record. I am the senior facility manager or authorized facility signatory, and fully authorized to execute this statement on behalf of the corporation or other legal entity whose facility is submitting this Annual Performance Report.

Signature



Date (month, day, year)

03/17/2020

Printed signature
Femi D-Etti

Title
Executive Director & General Manager

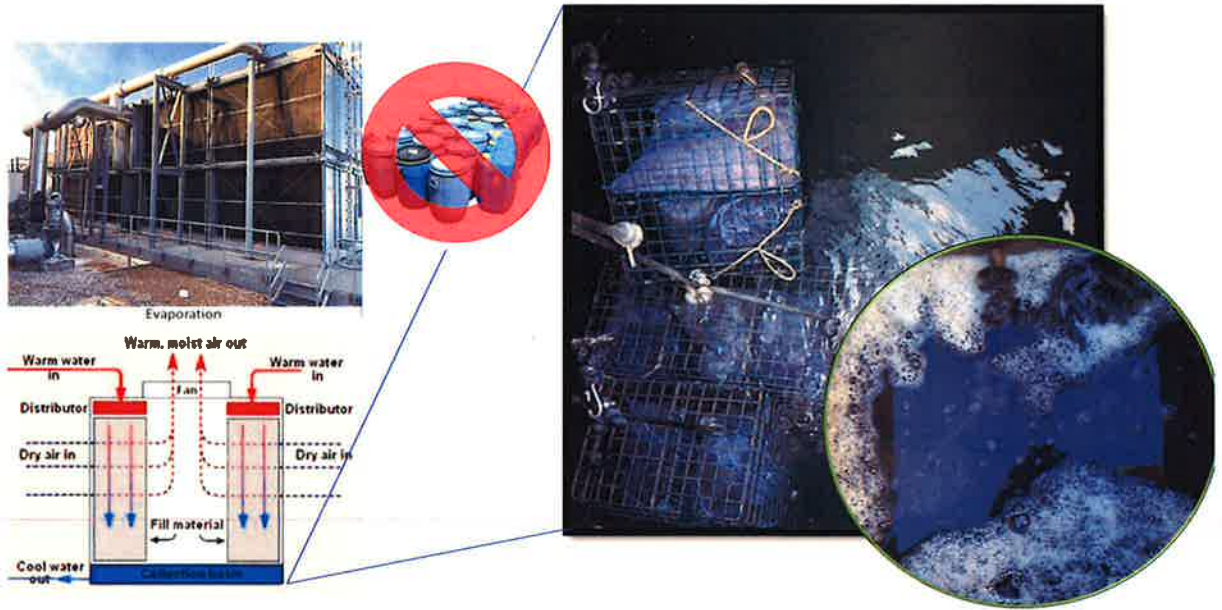
ATTACHMENT 2:
Sustainability Project Summaries

"AIR HANDLING UNIT FAN ARRAY BANK – SOMETIMES MORE IS SUSTAINABLY BETTER"



Providing the right amount of air ventilation at the right time is a balancing act when talking about sustainability. Having too much means we are using more natural resources to maintain temperature, pressure, and humidity; having the right amount means sustainable bliss. In Building 122, we removed two single, fixed speed, belt driven, supply fans and replaced them with a fan array assembly consisting of more than 12 small, direct drive (efficient) motors and variable frequency drives. This fan array allows us optimal airflow as we can bring more fans online when needed for operations; but when they are not needed, we run only those needed to maintain our room climate. The result was more than \$160,000 per year savings in electricity, gas, and water consumption, which equates to a nice reduction in our carbon footprint.

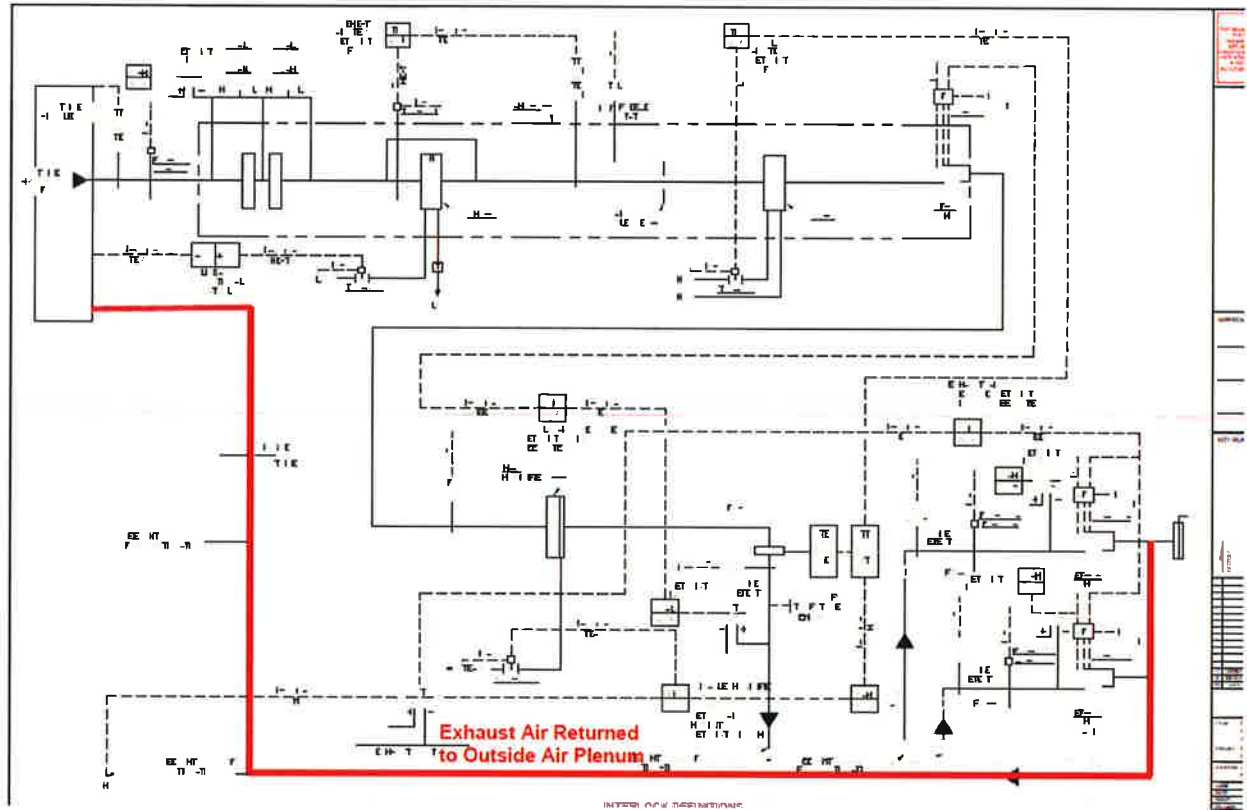
SPHAGNUM MOSS ALL-NATURAL TREATMENT SYSTEM IN COOLING TOWERS



Approximately 1.1 billion people (1 in 7) lack access to safe, fresh water. As an industry, **we need fresh water to maintain our operations with a large amount of this precious resource used in cooling towers. Typically, incoming water is chemically treated to meet water quality and then treated again prior to discharging to meet effluent standards.**

At Mt. Vernon, we have implemented an innovative, natural, and sustainable water management process for our cooling towers by using sphagnum moss in lieu of chemicals that achieves three sustainable goals: 1.) eliminates the vicious chemical treatment cycle, 2.) reduces water demand for the cooling tower as flushing is greatly reduced and 3.) improves the quality of water released. Oh, and by the way, studies show that sphagnum moss functions as a carbon sink, which actively participates positively in the carbon cycle.

“AIR HANDLER SINGLE PASS AIR SYSTEM ELIMINATION – IMPROVED EFFICIENCY, IMPROVED SUSTAINABILITY”



One-pass air is defined as air that we pull directly from the environment external from the facility and use to achieve our room exchange rates. It is filter-cleaned, heated, and moisture conditioned to the extent necessary to maintain a safe and clean room environment. We eliminated one-pass air, and created a closed, recirculation loop from the exhaust airstream back into the plenum upstream of the filter equipment and reduced air changes to 4 production rooms at 10 air changes/hour. By returning air to the AHUs and reducing air changes, the energy required to condition the remaining outside air is significantly reduced. Spent \$500k and realized energy savings > \$150,000/year with a combination of savings in electricity, natural gas, chilled water, and steam. These savings together help us to be more sustainable while providing the same room climate.